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COMPUTERIZATION PROGRAMME OF UNIDO

Comments on the report of the External Auditor on the in-depth examination of all aspects of the acquision of the electronic data-processing system

Submitted by the Director-General

1. Over the past five years, the Organization has had to cope with a series of financial crises and rapidly growing demand for its services under negative or zero real growth budgets. The workload of the Secretariat has increased enormously while staffing levels have remained more or less the same since 1986. Technical co-operation delivery rose from $99.6 million in 1986 to $159.5 million in 1990 (an increase of 60 per cent) and the value of approved projects (project allotment documents issued) increased from $93.3 million to $212.7 million (an increase of 127 per cent) over the same period. At the same time, the total number of authorized posts dropped from 1,310 in 1986-1987 to 1,253 in 1989, rising slightly to 1,289 in 1990-1991. Increased output has been achieved mainly through improved staff productivity and through the redeployment of substantial resources from support services to operational activities. Computerization played an important role in enhancing efficiency in the Secretariat.

2. UNIDO had tried for many years to cope with growing demands for computing services with a modest use of automation tools and services. Although, in the past, the Organization had some technical staff, it relied on the International Atomic Energy Agency (IAEA) for mainframe computing power, data storage and all related administrative activities. As IAEA's own demand for services increased, backlogs of work occurred and services in general continued in an increasingly slow and fragmented fashion. It became obvious that the Organization would benefit from an in-house integrated system with its own mainframe, terminals, workstations and the related cabling.

3. These conclusions and objectives were substantiated in 1988 by independent consultants, comparisons with similar organizations and discussions with various vendors. Based on the information gathered and on the fact that IAEA was planning to expand and upgrade its computerization programme, plans for an in-house computing centre were formulated. In March 1989 the plan and the financial implications were presented to the Permanent Missions which reacted favourably to the Secretariat's proposals. Implementation of the programme commenced thereafter.

4. Towards the end of 1989 and the early part of 1990, it gradually became apparent that the electronic data-processing (EDP) programme was causing substantial budgetary cost overruns. The Director-General in March 1990 ordered an internal investigation to determine why a problem of such major proportions had occurred. Based on the findings and recommendations of the internal studies - most of which were finalized at the end of April 1990 and which were made available to the External Auditor - certain remedial actions including changes in procedures and control systems, were immediately initiated. (Those changes are referred to in the annex to the present document.) The internal review of whether irregularities had occurred because of the magnitude of the costs did not disclose any wrongdoings or discrepancies of a financial nature attributable to any of the staff. It was emphasized, however, that controls should be strengthened and observed.

5. As soon as the Director-General was apprised of the magnitude of the cost overrun of the EDP programme, he took the earliest opportunity to bring the matter to the attention of the Member States. At the sixth session of the Programme and Budget Committee (June 1990), a detailed conference room paper (PBC.6/CRP.5) was formally presented on the subject. Subsequently, documents IDB.7/31 and Add.1 were submitted to the Board at its seventh session (November 1990). Those documents provide, inter alia, background information, reasons for the cost overruns and the measures taken by the Organization to establish effective controls. They also present a viable proposal for a reduced EDP programme as well as a feasible financing scheme in accordance with conclusion 1990/2 of the Programme and Budget Committee. The purpose of those measures was to place tighter control not only on the EDP programme, but also to prevent a recurrence of cost overruns generally and to ensure an effective interface between programmes, financial planning and reporting throughout the Organization. Also at that time, the Director-General in a letter of 1 November 1990 had taken the initiative to invite the External Auditor to undertake an in-depth examination of the EDP programme. Similarly, in his opening address to the seventh session of the Board, the Director-General proposed the establishment of

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an independent group of experts to examine all the technical aspects of the EDP programme.

6. Following consideration of documents IDB.7/31 and IDB.7/31/Add.1, the Board adopted decision IDB.7/Dec.26 which, inter alia:

- Requested the External Auditor to examine in depth all aspects of the acquisition of the electronic data-processing system, and report, in terms of conformity with or departure from financial propriety, procedural responsibility and fiscal management to the Programme and Budget Committee at its seventh session;

- Decided to establish urgently a working group of independent experts funded by Member States whose composition is to be decided upon in consultation between Member States with the following terms of reference:

  (i) To reassess UNIDO's needs regarding computerization from the technical point of view;

  (ii) To examine the contractual aspects of the proceedings as well as the implications of the clauses within those contracts for UNIDO;

  (iii) To study the financial options applicable to the EDP system;

  (iv) In light of this evaluation to make appropriate recommendations on an EDP system.

7. The External Auditor has now reported on his examination (PBC.7/3) and has noted various deficiencies, most of which had already been identified as a result of UNIDO internal reviews, and for which corrective measures either have been or are in the course of being taken.

8. The report of the External Auditor, in accordance with decision IDB.7/Dec.26, presents a succinct examination of the EDP system acquisition project of UNIDO. It focuses on three aspects of interest to Member States, namely, the conformity with or departure from financial propriety, procedural responsibility and fiscal management. Although greater balance in the treatment of "conformity with" and "departure from" could have been introduced into the report, the document nevertheless is, on the whole, quite useful as it provides an important basis for improving the overall effectiveness and efficiency of the EDP programme of UNIDO. Moreover, the report serves to reinforce the measures already initiated by the Director-General to introduce greater transparency into the EDP programme and to ensure its effective management by UNIDO.

9. The Director-General has always maintained the view that transparency and constructive dialogue on issues of interest to Member States serve the best interest of the Organization. For this reason, the Secretariat has endeavoured to keep Member States informed on all aspects of the EDP programme of the Organization. In this regard, it is noteworthy that the report of the External Auditor in paragraph 78 states: "Our current audit did not indicate that the Secretariat should have sought at any moment to deliberately withhold from the Policy-Making Organs of the Organization any important budgetary or financial information on the EDP system acquisition project." Thus in document IDB.7/31 the Director-General had indicated that while some of the cost increases had been recognized towards the end of 1989, a complete and accurate picture did not emerge until March 1990. That is corroborated by the report of the External Auditor (paragraph 82) which concluded that the estimated costs and budgetary implications of the programme hitherto were "often succinct, partial and tentative". Immediately thereafter, the Executive Management Committee of the Secretariat was convened to examine the full financial implications of the EDP programme and to take urgent remedial steps with a view to bringing the programme back on track from a managerial and financial standpoint. It is also worth referring to paragraph 79 of the External Auditor's report which pointed out, in particular, that: "... the Secretariat (had) tried to administer the project in conformity with the applicable fiscal management principles and procedures but that the complexity of the project (had) apparently amplified the already existing procedural weaknesses and shortcomings in several management areas of the Organization."

10. Against the backdrop of remedial and preventive measures taken by the Secretariat, the recommendations of the External Auditor, on the whole, constitute a further step in streamlining management of the computerization programme of UNIDO. While the Secretariat notes with appreciation the valuable recommendations for procedural and managerial improvements contained in the External Auditor's report, the following points are submitted as supplementary information and clarification of some of the issues raised in the report:

Strategic planning - paragraphs 8 to 12

11. It is acknowledged that a full strategic information systems plan was not compiled in advance, but time constraints and limited human and financial resources simply did not allow for such in-depth studies. However, rapid strengthening of computerization was considered of paramount importance to cope with growing needs during a zero growth budget period. The approach decided on was dictated by the twin needs to (i) take over the applications being run on the IAEA mainframe and (ii) to lay the foundation for future computer applications in a cost-effective manner.

Limitations of the GMO report - paragraph 16

12. Gesellschaft für Management- und EDV-Organisationsberatung (GMO) were well aware that UNIDO was assessing its office automation strategy for the future and was considering the advantage of integrating the office automation and data-processing architectures. Their terms of reference did not, however, include a detailed study of such possibilities, but for calculation purposes they based their recommendation on the cost of using two separate architectures.

Centralization/decentralization - paragraphs 18 to 20

13. The statement that "the concept of centralization of all computer power already at that time was no longer realistic because of the general trend towards PCs ...", attributed to the GMO report, is not necessarily correct. Decentralization is advantageous only for certain types of application, while for others centralization still offers the best solution. The latter is especially true in the case of large data bases which are the repository of

information that is updated from many sources and queried by many different users, as is the case with the project cycle. In an organization such as UNIDO, a mainframe computer is an absolute necessity because it represents the most effective means of safeguarding institutional data by ensuring organized, periodic back-up procedures and disaster recovery. It further provides the best method of supporting an integrated data base with multi-user access. Only by centralizing the applications development work is it possible to establish and enforce standards to ensure future maintainability of systems and programs and to avoid redundant development of similar systems for different divisions of the Organization.

Mainframe considerations - paragraphs 21, 22

14. The External Auditor's suggestion that it might have been possible to keep the IBM 9370 "to support all OA activities, thus allowing the Organization to acquire a smaller mainframe" is not feasible. The 9370 is limited in processing power and cannot support more than 160 workstations. If it had been kept, it would have had to be either supplemented with additional 9370s, or replaced with larger and larger machines. It is also a fallacy to assume that a smaller mainframe would be more economical in terms of facilities management resources, quite apart from the fact that such a machine would not make adequate provision for projected capacity requirements. Furthermore, it is incorrect to assume that it would be simpler to operate two separate machines than to operate a single one.

Advantages of a mainframe - paragraphs 23, 24

15. The External Auditor refers to the lack of a complete analysis of computerization solutions, other than the one provided by a large mainframe, as a shortcoming. However, it must be borne in mind that the EDP management had to assign first priority to keeping existing applications running without interruption. Efforts therefore clearly had to be focused initially, not on a decentralization project or on a choice of new architectures, but rather on the acquisition of hardware and software tools that would guarantee:

(a) The continued running of existing applications in such a way that it would be transparent to end-users;

(b) An operating environment that would enable existing applications development staff to maintain and/or develop data-processing systems by using their existing skills;

(c) A platform on which office applications such as electronic mail, document transfer and routing of documents for printing could be carried out;

(d) A platform on which future integrated systems could be built by providing applications development staff with additional software tools that would be compatible with their existing skills.

16. At the time, this guarantee could be provided in a practical and simple way only by a mainframe computer such as the one acquired. That management, therefore, adopted the correct global approach has been demonstrated by the results thus far achieved: (i) establishing an independent computer centre; (ii) migrating 100 per cent of the applications from the IAEA mainframe; (iii) smoothness of operation for programmers and end-users. All of this was achieved in a period of five months and any other approach would have entailed unacceptable risks and delays.

Personal computers - paragraph 25

17. The External Auditor questions the advisability of placing personal computers in locations where "inexpensive terminals" would be adequate for the jobs to be done. The fact is that an "inexpensive terminal" is only marginally cheaper than a basic personal computer (PC) configuration with basic software, but such an "inexpensive" approach eliminates all flexibility and enhanced functionality that can be achieved with a PC, including the capability of connecting to a data network such as the token ring.

Control responsibilities - paragraph 27

18. The External Auditor stated that one unit did not take the initiative to ensure a better exchange of information between different services so as to give a better overview and enhance control. As the financial and administrative aspects are not assigned to that one particular unit within the Department of Administration, it cannot be held responsible for failing to control the EDP programme properly.

Role of the Management Information Technical Committee - paragraphs 28, 29

19. The External Auditor refers to the guidelines for the acquisition of computer resources and indicated that those were not observed for the mainframe project. The terms of reference of the Management Information Technical Committee (MITC) do not call for its Chairman, irrespective of the amount of information available, to exercise budgetary or expenditure control. For the acquisition of the mainframe and related services as well as for the acquisition of peripheral equipment, requisitions with the correct amounts were prepared by the Electronic Data-processing and Office Automation Service, but the certification of funds and financial control are exercised elsewhere in the Department of Administration.

Bidding - paragraph 51

20. The lack of an overall in-depth analysis of UNIDO's needs and related planning may have affected the development and implementation of computer applications in the past, but the principles and procedures of competitive bidding were never violated. The Secretariat is currently committed, as part of its computerization programme, to avoiding piecemeal procurement by engaging in a global, top-down approach.

Purchase of an IBM 9370 - paragraph 57

21. The need for the IBM 9370 as an office automation central computer was important to the Secretariat. The bidding procedure took place from August to October 1988 (although the contract was only signed in March 1989) and the equipment was in operation for 19 months, from March 1989 to October 1990.

Software for office automation - paragraph 58

22. During the course of procurement it was learned that the software in question could be obtained only from IBM.

Validity of the IBM offer - paragraph 63

23. According to UNIDO's normal practice, offers should be valid for 90 days, but it is not a requirement that the contract should be signed only on or after the last day of validity. The purpose of awarding a contract to IBM by mid-November 1989 was to ensure that the proposed implementation by July 1990 would be met, i.e. the transfer of all data from the IAEA mainframe.

Competitive proposals - paragraph 66

24. The Secretariat has taken note of the recommendations made by the External Auditor for the procedures of calling for competitive proposals. The established procedures followed by UNIDO Contracts and Purchase Sections and the relevant financial rules will be elaborated in future to offer better safeguards and, as appropriate, more transparency. Improved procedures of the Committee on Contracts and guidelines on the format of submissions to the Committee will be issued.

Redeployment of funds - paragraphs 86, 88

25. We concur with the comments of the External Auditor that UNIDO's presentation to the policy-making organs related to the computerization programme should have been separated from the normal redeployment exercise and that all related costs should have been clearly identified. The Secretariat did seek authorization from the policy-making organs for redeployment of funds for the EDP programme. In documents PBC.5/11 and GC.3/CRP.6 it informed the policy-making organs of the additional resources required for the EDP programme in 1988-1989 and sought the formal authority of the policy-making organs for the redeployment of resources to meet the additional expenditures (PBC.5/11, para. 5). The Programme and Budget Committee in its conclusion 1989/6, inter alia, recommended to the Board that it take note of the revised appropriations for 1988-1989 contained in annex IV of document PBC.5/11. Subsequently, the Board included in its decision IDB.5/Dec.27 a reference to having reviewed "conclusion 1989/6 of the Programme and Budget Committee and the revised appropriations for the biennium 1988-1989 contained in annex IV of document PBC.5/11". Although no action was taken by the General Conference, the fact remains that the Secretariat did make the effort to bring the matter to the attention of the Conference (GC.3/CRP.6) and to seek formal authorization to incur additional expenditures for the EDP programme within the total appropriation for 1988-1989. The Director-General has now issued instructions (DG/B.142) that procedures be changed with immediate effect so as to avoid such a recurrence, particularly with respect to large programmes.

26. The expected shortfall of resources for the EDP programme in 1990-1991 was not brought formally to the attention of the General Conference in November 1989 for three reasons: (i) the cost increases expected at that time did not provide a complete and accurate picture of the additional resources required, and, consequently, it was not deemed appropriate to present the policy-making organs with incomplete and, on hindsight, inaccurate estimates of the full cost of the EDP programme for the period 1990-1995. The External Auditor has also concluded that the estimated costs and budgetary implications of the programme presented were often incomplete or tentative; (ii) the correct procedure, in any case, is to submit the matter for approval to the General Conference, through the Programme and Budget Committee and the Board, a procedure the Secretariat followed through documents PBC.6/11, IDB.7/31 and Add.1; and (iii) the extremely limited time available to prepare a report on the matter from the time the cost increase became known in late October 1989 to the holding of the third review of the General Conference in November 1989.

27. On the matter of seeking formal authority to incur additional expenditures on EDP, an important distinction should be made between the resources for EDP included in the 1988-1989 appropriations which were formally approved by the policy-making organs on one hand, and the additional resources needed to cover overexpenditures from economies, for which the Secretariat sought formal authorization from the policy-making organs as indicated above.

28. Based on the outcome of the in-depth examination by the External Auditor of UNIDO's EDP programme, and the recommendations which will shortly emerge from the independent group of experts established by the Industrial Development Board, it is the Secretariat's conviction that Member States would agree to a timely implementation of the reduced EDP programme as outlined in documents IDB.7/31 and Add.1, thus strengthening the hands of the Secretariat in delivering more cost effectively and efficiently the industrial development needs of the developing countries. The success of UNIDO's EDP programme and its related outputs is indeed of mutual benefit to the Secretariat and the Member States.

Annex

Chronology of events and action taken

18 June 1990

A briefing session for Permanent Missions was held at which the Director-General reported the cost overrun.

25-29 June 1990

A conference room paper (PBC.6/CRP.5) was issued to fully inform the Programme and Budget Committee about the cost overrun.

July - October 1990

- Documents IDB.7/31 and IDB.7/31/Add.1 provided details on all aspects of the EDP programme to ensure greater transparency.
- Detailed replies to two questionnaires by the Permanent Mission of Japan were prepared and transmitted.
- Negotiations were initiated with IBM to extend the contract period to alleviate cash-flow pressure.
- Informal proposals were made to other VIC-based organizations for sale of presently available computer capacity.

1 November 1990

In a letter to the External Auditor, the Director-General requested that an independent special audit be done of the EDP programme.

6 November 1990

In his address to the seventh session of the Board, the Director-General proposed an independent expert group to examine the technical aspects of the EDP programme.

The following changes were introduced as a result of the internal studies:

1. The framework of a strategic information systems plan to establish overall priorities and to provide a clear policy framework for the EDP programme has been drafted and is presently under consideration for finalization.
2. Revised terms of reference for the Computer Management Committee (CMC) and the Computer Technical Committee (CTC) have been prepared to provide for more effective policy and budgetary control.
3. A charge-back system to distribute EDP costs to users in an equitable way is near completion. The first version is presently being evaluated and it should provide effective control over budgets and expenditures. Although the system is still in the development phase, it has already been used in preparing the proposals for the 1992-1993 programme and budgets.
4. A new coding system to track computer expenditures was introduced in December 1990 to provide information about various EDP-related costs in all programme elements. The system will be expanded to encompass allotments as well as other major projects.
5. A reporting system to inform management about the development of systems, the usage of the mainframe capacity and other related matters is being developed and is expected to be introduced in March 1991.
6. The financial rules and regulations and the roles and responsibilities of certifying and approving officers are presently being reviewed in conjunction with the preparation of a financial and accounting manual.
7. The structure of the Electronic Data-processing and Office Automation Service is being strengthened and recruitment action for a Director has been initiated.